WHAT IS CLAIMED IS:

1. A method for forming self-pinned abutted junction heads, comprising:

forming a self-pinned layer, the self-pinned layer having a first end, a second end and central portion;

forming a free layer in a central region over the central portion of the self-pinned layer; and

forming a first and second hard bias layers over the first and second ends of the self-pinned layer respectively, the first and second hard bias layer abutting the free layer, the first and second end of the self-pinned layer extending under the hard bias layers at the first and second ends.

2. The method of claim 1 further comprising forming a spacer layer over the self-pinned layer and forming a first and second seed layer between the first and second hard bias layer and the spacer layer.

3. The method of claim 2 further comprising forming amorphous layers between the spacer and the first and second seed layers, the amorphous layer stopping epitaxial growth between the self-pinned layer and the first and second hard bias layers.

4. The method of claim 1further comprising forming amorphous layers between the self-pinned layer and the first and second hard bias layers for stopping epitaxial growth between the self-pinned layer and the first and second hard bias layers.

5. The method of claim 1 further comprising forming first and second leads over the first and second hard bias layers.

6. The method of claim 1, wherein the forming the first and second hard bias layers further comprises electrically coupling the first and second hard bias layers to the free layer to allow sense current to pass through the free layer.

7. The method of claim 1, wherein forming the first and second hard bias layers over the self-pinned layer further comprises providing a coupling of the self-pinned layer and the free layer to the first and second hard bias layers, the first and second hard bias layers being cooler than the central region to maintain pinning of the first and second hard bias layers, the maintenance of the pinning of the first and second hard bias layers maintaining the pinning of the free layer.

8. The method of claim 1, wherein the forming the free layer further comprises forming the free layer with a length selected for a desired track width.

9. A self-pinned abutted junction magnetic read sensor, comprising:

a self-pinned layer, the self-pinned layer having a first end, a second end and central portion;

a free layer disposed over the central portion of the self-pinned layer in a central region; and

a first and second hard bias layers formed over the first and second ends of the self-pinned layer respectively, the first and second hard bias layer abutting the free layer, the first and second end of the self-pinned layer extending under the hard bias layers at the first and second ends.

10. The sensor of claim 9 further comprising a spacer layer formed over the self-pinned layer and a first and second seed layer disposed between the first and second hard bias layer and the spacer layer.

11. The sensor of claim 10 further comprising amorphous layers formed between the spacer and the first and second seed layers, the amorphous layer stopping epitaxial growth between the self-pinned layer and the first and second hard bias layers.

12. The sensor of claim 9 further comprising amorphous layers formed between the self-pinned layer and the first and second hard bias layers for stopping epitaxial growth between the self-pinned layer and the first and second hard bias layers.

13. The sensor of claim 9 further comprising first and second leads formed over the first and second hard bias layers.

14. The sensor of claim 9, wherein the first and second hard bias layers being electrically coupled to the free layer to allow sense current to pass through the free layer.

15. The sensor of claim 9, wherein the first and second hard bias layers being cooler than the central region to providing stable pinning of the free layer.

16. The sensor of claim 9, wherein the free layer includes a length selected for a desired track width.

17. A magnetic storage system, comprising:

a moveable magnetic storage medium for storing data thereon;

an actuator positionable relative to the moveable magnetic storage medium; and

a magnetoresistive sensor, coupled to the actuator, for reading data from the magnetic recording medium when position to a desired location by the actuator, wherein the magnetoresistive sensor further comprises:

a self-pinned layer, the self-pinned layer having a first end, a second end and central portion;

a free layer disposed over the central portion of the self-pinned layer in a central region; and

a first and second hard bias layers formed over the first and second ends of the self-pinned layer respectively, the first and second hard bias layer abutting the free layer, the first and second end of the self-pinned layer extending under the hard bias layers at the first and second ends.

18. The magnetic storage system of claim 17 further comprising a spacer layer formed over the self-pinned layer and a first and second seed layer disposed between the first and second hard bias layer and the spacer layer.

19. The magnetic storage system of claim 18 further comprising amorphous layers formed between the spacer and the first and second seed layers, the amorphous layer stopping epitaxial growth between the self-pinned layer and the first and second hard bias layers.

20. The magnetic storage system of claim 17 further comprising amorphous layers formed between the self-pinned layer and the first and second hard bias layers for stopping epitaxial growth between the self-pinned layer and the first and second hard bias layers.

21. The magnetic storage system of claim 17 further comprising first and second leads formed over the first and second hard bias layers.

22. The magnetic storage system of claim 17, wherein the first and second hard bias layers being electrically coupled to the free layer to allow sense current to pass through the free layer.

23. The magnetic storage system of claim 17, wherein the first and second hard bias layers being cooler than the central region to providing stable pinning of the free layer.

24. The magnetic storage system of claim 17, wherein the free layer includes a length selected for a desired track width.

25. A self-pinned abutted junction magnetic read sensor, comprising:

a first means for providing a self-pinning means, the first means having a first end, a second end and central portion;

a second means layer disposed over the central portion of the first means in a central region; and

a third and fourth means formed over the first and second ends of the first means respectively, the third and fourth means abutting the second means, the first and second end of the first means layer extending under the third and fourth means at the first and second ends.

26. A magnetic storage system, comprising:

a moveable magnetic storage means for storing data thereon;

an actuator positionable relative to the moveable magnetic storage medium; and

a magnetoresistive sensor, coupled to the actuator, for reading data from the magnetic recording medium when position to a desired location by the actuator, wherein the magnetoresistive sensor further comprises:

a first means for providing a self-pinning means, the first means having a first end, a second end and central portion;

a second means layer disposed over the central portion of the first means in a central region; and

a third and fourth means formed over the first and second ends of the first means respectively, the third and fourth means abutting the second means, the first and second end of the first means layer extending under the third and fourth means at the first and second ends.